

# Configuration / Communication Initial Set-Up.

## **T4020-01** for T4020 T5020 and Z5020 Gauge ranges

FTDI Chip Interface converter cable.

If you have this type, these will work with all Versions of Windows.

1/. These units "SELF DOWNLOAD DRIVERS"

# But only when your PC is connected to the Internet.



The screen will show driver download status And will say when the download is complete.

2/. If the drivers are installed correctly, the Communication Port can be verified in the PC's "Hardware Profiles" as this will be needed when the Configuration software is loaded and communication to the Gauges is required.

Please note, OLE are not a PC support company, so please do not call us asking for help to find the port allocation.

(Some of this is defined in "How to set up the Configurator" in the Document Download section for the Gauges and this T4020-01).

3/. Please ensure the Gauge is in "Standard Mode to talk with the configuration software. (This is shown during power up, bottom right). If it says Modbus, change this to Standard (See I@O Manual, or please consult our web site FAQ section.)

# Configuration Software.

Please download the Gauge configuration software from www.oleuk.com

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Q T4020-01		SEARCH 🗙
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## Download from the link shown below (T4020-01 Search)



## T4020/T5020 Tank Gauge Configuration A Step by Step Guide.

PD02/0004 - Revision: 01 - March 2017 The set-Up of T4020/T5020 Tank Gauge system using Interface lead and he software on a PC / Laptop. Latest version of the software is **V1.0.0.16** Tank Gauge adjustments can be made with the T4020 Configuration software.

This needs to be loaded on to Service Laptops or an Office PC.

1<sup>st</sup> Issue that will nearly always catch you out. Are the gauges set in "Modbus" mode, or if they are in "Standard" mode. To talk to the gauge with the configurator software, the gauge needs to be in "Standard" mode. If it is not in "standard" mode, disconnect the power lead (24vdc supply), and hold down the front alarm test button (**PRESS/HOLD TEST BUTTON**) for 3 seconds and then reconnect the power, hold for another second. (Front display will change to from "Modbus" to 'Standard), if not, just remove power and reapply power. (Cycle power again when finished.)

**2<sup>nd</sup> Issue**, the comms lead will not talk to the tank gauge. "USB Serial Com Port" not set to correct COM port address. See below on how to set up or document **PD02/0003**.

This is the port you require to set the configurator, this is achieved by following the instructions for **the Device Manager** below.

IF YOU HAVE ANY ISSUES WITH SETTING UP / ACCESSING THE DEVICE MANAGER PLEASE REFER TO DOCUMENT **PD02/0003 – DEVICE MANAGER CONFIGURATION.** 

## Windows Setup (Windows 10) / Device Manager.

Left click on the *This PC* icon. Scroll down and click on the *Properties* tab.

			<b>⊻</b> ←	System → ↑ 🔛 → Control Pane	el > System and Security > Sys	stem
This Contraction Recycle	C B P S S P	Open Browse with Paint Shop Pro 9 Pin to Quick access Manage Scan with AVG Pin to Start	<ul> <li></li> &lt;</ul>	Control Panel Home <u>Device Manager</u> Remote settings System protection Advanced system settings	View basic information Windows edition Windows 10 Home © 2016 Microsoft Corporat	aboı tion. A
Intern Explo	C C R P	Disconnect network drive Create shortcut Delete Rename Properties		60	Processor: Installed memory (RAM): System type: Pen and Touch: Computer name, domain and Computer name: Full computer name:	Intel 8.00 64-t No f workg DESI DESI

This will open the Control Panel / System and Security / System page. Click on the **Device Manager** Icon. This will bring up the device manager page.

Scroll down and there will be a folder **Ports (COM & LPT).** It should show the USB Serial Port with the Com port it is attached to, in this case, (**COM7**), this will vary on whatever computer the programmer is attached. This is the figure that is entered in the T4020 Configuration Software. The communications lead RED LED should flash when you try to connect the USB programmer to show the address for the lead is correct.



Connect the Programmer to the T4020 / T5020 Unit as shown in Page 7.

## T4020 Configurator (Configuration) Software.

Next step is to open the T4020 Configuration Software. Click on the *File* tab. On the dropdown menu, click on the *Program Settings* tab.

T4028 Configurator					
File Device Help					
Device Status Q Display Options	Sensor Parameters 🤷 T	ank Settings   👸 Alarm	Setpoints	$\setminus$	
-	F4020 Co	nfigurate	or		
		3	Software Vers	sion: 1.0.0.16	
	[				
Device Status	Connection Status				
Device status shows a live status of the T4020 device including the	<not connected=""></not>				
corrected tank volume and alarm	Device Information				# T4020 Configurator
outputs	Device Name	cont connected>			
To connect to a device select 'Connect' from the 'Device' menu	RS-485 Node ID	<not connected=""></not>			File Device Help
Use the tab sheets to configure the	Software Ver.	<not connected=""></not>			Open
settings for the device.	Device Status				Saveas
	Tank Volume	<not connected=""></not>			Program Settings
	Device State	<not connected=""></not>			Exit T40
	Alarms		Key:		
	Master 🔘	Alarm 2	Alarm Active		
	Alarm 1	Alarm 3	Alarm Inactive		Device Statue
					Conne
					Device status shows a live status of the T4020 device, including the
			DIS		corrected tank volume and alarm
			013	CONTRACTED	Devic

This will open the *Settings* screen (Shown Below). Select from the dropdown menu the Com Port number (as shown in the device manager) and click OK.



Next step, click the *Device* tab at the top of the screen and click *Connect*. A pop up screen, *Input Value* will show, click on *OK*.

Node ID 99 is a global address which will work if only have one gauge connected.

Input Value	Information
Please enter the RS-485 Node ID of the device you	You have selected ID 99. This is a broadcast address
wish to connect to. (Note: ID 99 will connect to all	Please ensure only one device is connected to the RS-485 bus before you continue.
devices)	Do you wish to continue?

Click on Yes on the Information screen.

Now the software will connect and "talk" to the unit, as shown in the bottom left of the configuration screen. When the unit has connected, it will show **CONNNECTED** in the bottom right of the Configuration Screen.

T4020 Configurator		
File Device Help		
Device Status	Sensor Parameters	Tank Settings   17 Alarm Setopints
-	F4020 Ca	
	14020 60	
		Software Version, 1.0.0.16
Device Status		
Device status shows a live status of	Connection Status	
the T4020 device, including the	Connected	
corrected tank volume and alarm outputs	Device Information	
To connect to a device select	Device Name	T5020
'Connect' from the 'Device' menu	RS-485 Node ID	99
Use the tab sheets to configure the	Software ver.	1.12
settings for the device.	Device Status	
	Tank Volume	0.00 Litres
	Device State	Running
	Alarms	Kev:
	Master	Alarm 2
	Alarm 1	Alarm 3
		CONNECTED

Click on the *Display Options* tab.

T4020 Configurator		
Device Status     Display Options	Sensor Parameters   凸 Tank Settings   👸 Alarm Setpoints	
Display Options: Display options allow you change settings for the LCD display "For units without a display these options will not be enabled" Please note: when changing the contrast you must click on the "Write Settings" button before the contrast settings are saved perminantly. Screen damping is a time period in seconds for each display update. For large tanks it is recommended this value is set high.	Current Contrast Value: 47%	
<u>R</u> ead Settings <u>W</u> rite Settings	[2.00] (Secs)	
		CONNECTED

Current Contrast Value, default is 47%. Set as required.

*Number of Significant figures* is 5. On the T5020, there is the option to choose *Resolution of Display*, e.g. 50 Litres or 10 Litres etc. Set as required. *10.00* for instance.

Display Units of Measure, set to Litres unless otherwise requested.

*Screen Damping*, makes the screen more stable, suggest 2 Seconds.

When this screen is complete, Click Write Settings.

Click on the Sensor Parameters tab. Note: Set to Suit the Sensor, NOT TE TANK.

Sensor Min, set to **50mm** (0.05m) as standard. Sensor (Min) Reading set to *4.00mA* This would mean for example a 2m Sensor, would be set as a Sensor Min 0.05m to a Sensor Max 2.05m. and a 3m Sensor would be Sensor Min 0.05m and Sensor Max 3.05m etc. Sensor Max, set to Sensor 0.05m plus the Sensor length as shown in example above. Sensor (Max) Reading set to 20.00mA Enter the **Specific Gravity** of contents. Enter the value of what is required from the list below. Gasoil = 0.84 / Diesel (Derv) = 0.835 / Kerosene = 0.80 / Petrol = 0.745 / AdBlue = 1.09

Rapeseed Oil = 0.92 / Lube Oil = 0.89 and Antifreeze = 1.11

When this screen is complete, Click Write Settings.

#### Click on the *Tank Settings* tab.



The next step is to set the tank shape up. Enter the tank type from the scroll down menu, a name for the tank and the measurements.

Note that the tank can be taller than the sensor range due to specific gravity.

For example, the tank as being 2.2m tall. If we say this is Diesel (DERV), then  $2.2 \times 0.835 = 1.837$  affective range on the sensor. This means we can use a 2.0m sensor in a 2.2m tank.

(A 3m sensor will work fine as well).

Ensure that the Enable 4-20mA Output is ticked.

Please make sure the Mirror Output box is NOT 'Checked' (ticked). If it is we need to discuss.

The Mirror input may be used when a second Gauge is set exactly the same as the first. Alternatively, the second Gauge can be set to have the Sensor Parameters the height of the primary tank and this will work over the full 4-20 milliamp range of the first gauge output. No sensor offset required.

When this screen is complete, Click Write Settings

#### Click on the *Alarm Setpoints* tab. <

T4020 Configurator							
File Device Help							
1 Device Status Q Display Options	Sensor Parameters	Tank Settings	Alarm Setpoints				
Device Status     Q Display Options     Alarm Setpoints & Test     Alarm settings allows you to assign     up to 4 alarms.     Alarms relate to the 4 output drivers     on the device.     You can create raising edge alarms -     alarms that are triggered when the     level goes above the setpoint, or     falling edge alarms - alarms that are     triggered when the level goes below     the setpoint.     Push the test button to test the output     on the device for 5 seconds. <u>Bead Settings</u>	Sensor Parameters           Master Alarm           Direction           Setpoint           Hysterisis           Alarm 2           Direction           Setpoint           Hysterisis	Tank Settings Tenabled TEST Raising Edge 93.00 (%) 2000 (ms) Enabled TEST (%) (ms) (ms)	Alarm Setpoints           Alarm 1           Direction           Setpoint           Hysterisis           Alarm 3           Direction           Setpoint           Hysterisis	Enabled TEST (%) (%) (ms) Enabled TEST (%) (%) (ms)			
Write Settings							
				CONNECTED			

Set the Alarm settings as required (High is normally 95% Rising).

Set the "Direction" to "Rising" or "Falling". This will result in energising the Relays (R5 Option Board) if fitted in that 'form'.

Rising at 95% on the M alarm will output 24vdc when the level increases to 95%.

When this screen is complete, Click Write Settings.

Next step is to Access the T5020 additional settings and Summary Screen, press the *Ctrl*, and letter *H* keys simultaneously, and click on *Device Status* Tab.



This will bring up the summary screen of what has been programmed into the unit as shown below

🞢 T4020 Configurator		
File Device Help		
1 Device Status Q Display Options 🖨 Sens	or Parameters 🛛 凸 Tank Settings 🛛 👸 Alarm Set	points 💾 Summary
Unit Serial Number	Software Version: 1.12	
Display Options		
Current Contrast Value: 47%	Display Resolution: 10.000	Display Units: Litres
Display Resolution Hysteresis 25	Screen Damping: 2.00	
Sensor Parameters		
4.000mA Level: 0.050 Meters Water	20.000mA Level: 3.050 Meters Water	Specific Gravity: 0.840
Tank Settings	Tank Name:	
Tank Length: 2,000	Tank Height: 2 000	Tapk Width: 2,000
Enable 4-20mA Output: YES	Mirror 4-20mA Input: ND	Safe Working Capacity 100 %
$4m\dot{a} - 20m\dot{a} = 0$ to $80001$ litres		
Alarm 1 - Direction: Rising Edge Alarm 1 - Direction: DISABLED Alarm 2 - Direction: DISABLED Alarm 3 - Direction: DISABLED	Master - Setpoint: 93.000% Alarm 1 - Setpoint: DISABLED Alarm 2 - Setpoint: DISABLED Alarm 3 - Setpoint: DISABLED	Master - Hysteresis: 2000ms Alarm 1 - Hysteresis: DISABLED Alarm 2 - Hysteresis: DISABLED Alarm 3 - Hysteresis: DISABLED
General		
Mount Sensor 0 mm off bottom of tank	Bund Alarm Fitted? No 💌	Comms Type Standard 📃
Node Address: 99	Completed Date	
Name:	File saved as	
Read Settings	ettings	
		CONNECTED

The Summary page. Click on the **Device** tab at the top of the screen and click **Read All settings**. This will display all the settings that has been programmed. Next stage is to enter the final information on this screen.



Unit Serial Number: This is the serial number on the label of the front of the unit.

**Safe Working Capacity:** If the unit is a T5020, the Safe Working Capacity can be set to say 97%. In this case the Alarms are based on the Safe Working Capacity value, so 10,000 litre tank has SWC of 9,700 litres. An Alarm set at 95% will be 95% of 9,700 litres, not of 10,000.

*Mount Sensor*: 50 mm off the bottom of the tank.

Bund Alarm: If fitted, click YES, if not, Click NO.

Comms Type: Generally, set to Standard.

Name, Who, setup the unit, *Date* when setup and a *File Saved as* Name. XXXXXXXX.tls

Click the *File* tab at the top of the screen and then "*Save As*". When this screen is complete, click the *Device* tab at the top of the screen again and then *Write All Settings*.

#### ONLY READ AND WRITE SETTING FROM THE DEVICE TAB AT THE TOP OF THE PAGE.

If you have selected 'Non-Standard' as the tank type and put in a strapping table, you may have to "Write All Settings" Twice. Click on *Disconnect*. Remove the programming lead. This completes the calibration. Result, you should have a fully calibrated working Gauge, with 4-20 mA proportional to Litres, and either a *Standard* or *Modbus* RS485 output.



T5020/Z5020

First table value (line 1) must be 0.00 for both Height and Volume, see below

	Height: Volume:		in Metres (m³)	1 metre = 10 1 cubic metr	1 metre = 100cm 1 cubic metre = 1000 ltrs		
T4020 Configura	ato					:	
Device Status	Q. Display lotions	Sens	or Parameters   💆	🏱 Tank Settings 🕜 Manual Linea	arisation 🕅 🛱 Ala	rm Setpoints	
Manual Linearis	ation:		Height	Volume (m <sup>3</sup> )	^		
Manual Linearia		1	0.000	0.000		Import CSV	
specify up to 100	points for the T4020	2	0.010	0.168		Export CSV	
device to interpola	te between. By	3	0.030	0.173		Exportesv	
pairs you can calc	culate the volume of	4	0.090	0.895		<u>C</u> lear Table	
rregular tanks. Yo	ou must, however,	5	0.120	1 368	_		
linear sensor and	be able to relate this	6	0.120	2 503	_		
to the volume in the	e tank. An absolute	7	0.100	2.303	_		
and the points mus	st be arranged in	<u>'</u>	0.210	3.147			
ascending order.		°	0.240	3.030			
For further informa	ation on manual	9	0.280	4.565			
inearisation please	e consult the user	10	0.300	5.335			
inanda.		11	0.330	6.141			
		12	0.340	6.395	_		
		13	0.360	6.979			
<u>R</u> ead	Settings	14	0.420	8.751			
Write	Settinge	15	0.450	9.679	×		
	Jettings						
_							
						CONNECT	

## The maximum number of lines that can be input/imported is 95 (including 0.00)

T4020 Configurator File Device Help					- • ×
Device Status Q Display Options 4	Sens	or Parameters 🛛 凸 Tank Se	ettings ( Manual Linearisat	ion 🔂 A	larm Setpoints
Manual Linearisation:		Height	Volume (m <sup>3</sup> )	<u>^</u>	
Manual Linearisation allows you to	87	2.700	99.056		Import CSV
specify up to 100 points for the T4020	88	2.730	99.815		Export CSV
device to interpolate between. By entering a range of height & volume	89	2.760	100.534	<b>J</b>	Export 00 7
pairs you can calculate the volume of	90	2.790	101.210		Clear Table
irregular tanks. You must, however, be able to measure the height from the	91	2.850	102.417		
linear sensor and be able to relate this	92	2.910	103.390		
to the volume in the tank. An absolute minimum of two points are needed.	93	2.970	104.040		
and the points must be arranged in	94	2 980	104.090		
ascending order.	05	2,000	104 140		
For further information on manual	00	2.550	104,140		
linearisation please consult the user	90				
manual.	97				
	98				
	99		-		
<u>R</u> ead Settings	100				
Wate Cottings				~	
<u>vv</u> rice Settings					
					CONNECTED

If 96 lines or more are input, the gauge will need to be returned to OLE for a reset and reload of firmware. (this can cause the gauge to display 0 Ltr, or display HIGH)

T 14220 / 15220 Configurator Ele Device Help	Input Value Version Provider Node ID of the device year Unit Serial No-	2
T4020 / T5020 Configurator	(divise) Model T5020 / Z5020 //	
Software Version 1.0.0 18 Device Status Connection Status	Say ok to the next screen, and then the main screen bottom left should a	show
Device status shows a live status of the "14202" device, nicking the corrected tank volume and starm outputs	'Reading Device'. If it does not, power down and reconnect and verify or front screen the node ID, and try again. (Are you using correct soft / firm	<b>ו the</b> וware
To consect to a device select Consect from the Device frame Use the tab absets to configure the Use the tab absets to c	versions). Once connected the unit will advise 'connected' bottom right. The display main screen will now show	- 🗆 X
settings for the device. Device Status Task Volume 0.00 Litres Device State Running	Current live readings. Move to Contrast Value set the display	9 Summery
Alarms Keyr Master O Alarm 2 O Alarm Active		
Alarm 1 O Alarm 3 O Alarm hactive	Set display units 'Litres' ?	
CONNECTED Select Device Connect, and you will be given the option to	Set screen damping toseconds upwet i seconds	
enter a Node ID. For individual gauges or stand alone gauges, use '99'.	Then select     'Write Settings'	
(When multi-drop communications are used, name each device 1 to 32). (Screen scroll tells you what this is)		CONNECTED
Sensor Parameter Screen. 3	Tank Settings Screen. This is where the actual tank shape is entered.	4A
Set the 4.00 mA level 'A' to the distance the probe will be from tank bottom. This is usually 50 mm		
so 0.050 meters.	O Dovice Status Q. Daptay Optices Sensor Reventers (C Tiers Actions & Anno Selponts ) C Summery	
O Score State   Q days years	Task Serup: Task Serup: Task Spep ov with 16 sector 18 Task Spep ov with 16 sector 18 Task Spep ov with 16 sector 18 Task Sector 19 Task Sector 19 Task Spep ov with 16 sector 18 Task Spep ov 18 Task Sp	
all void tautis training     initianing	Addet and produce up 2 codes, as odds, and y vence option:     Seder Thir on statefer tank years     The tank with of nessare:     The tank with o	
Blance and a start for a start	Very series in security deep your date where is a the interaction regulated where the security of the securit	
Note that a materia manufacture in the second and t	4-20 out ? And for a for	
	Bed Settings mirror ? Furne 3 Settings	+***
The <b>Specific G</b> ravity is the gravity of the liquid to be measured.	Select the Tank Type. (If you have a non standard tank, chose that).	lies
1.09 for AdBlue, 0.79 for Kerosene, and 0.84 for Gasoil etc.	Name the Tank. IMPORTANT, this name shows on display SCROLL, and should only be up to 8 letters / numbers long	
plus the offset 'A' above, So a 2500mm range probe, 50 mm from bottom will be 2 550 meters	Fill in tank dimensions in 'meters'. (1000mm = 1 Meter) (1 "= 0.0254 M	1)
(Probes are coded eg A22 = 0-2500 mm)	If required select 'Mirror output' This is required if the raw signal is to be and read on another Gauge display mounted elsewhere.	used
Notes	4B For Non standard tanks or dip stick measured data, you need to the heights of liquids and the volume this relates to	enter
If BUND alarm is incorporated, this has an auto set-up	For example, 0.120 meters (120 mm) = 0.2 cuM (200 litres). You must details as Meters and Cubic Meters. There are a minimum of 2 points at	enter nd a
IF Fitted = JUMPER ON?? MODBUS or STANDARD	maximum of 90. You can import these values from a .csv file if available (List these details on the back of this form).	
Alarm Screen	Communicating with the device by RS485, you should ensure the	
For a local HIGH ALARM, the 'Master' Alarm is used <b>5</b> Set this at what ever % you require. Ie 95%.	RS Node Address is set. Click Device and 'Change RS485 Node ID'	
This will now alarm at 95% of tank contents. Set the Hysteresis as required. We suggest 2000 milliseconds	Now Click 'Device' on top tool bar, and 'Write All Settings' This can take some time if the Non Standard Tank Feature has been us	ed.
The M Alarm can be acknowledged from the front panel. Please consider this when wiring outputs into Building Management Systems	Now please SAVE THE FILE to your PC, and 'DEVICE' and 'DISCONN	IECT'.
The Alarms 1,2,3 can not be acknowledged locally.	File saved as :	
1 14020 / 15020 Configurator × Else Device Help	This is a .tls file and can be e-mailed to OLE for assistance.	
	COMPLETED DATE NAME	
Auton Resengtor Direction (Faling Edge )	Using "CTRL + H" and click on "DEVICE STATUS" a "SUMMARY S	HEET"
2000 Ms Hysteriaa 2000 (ms) Hysteriaa 9 (ms) 2000 ms	Trouble shooting:	
n netion fraing Edge . Foreided TEST	Device Fails to connect: Cycle the power to the 14020. Check RS485 connections are good. C communications port is correct ? Device Fails to connect: Check Software version you are using is compatible	песк РС
Import         0.00         (%)         Selport         0.00         (%)           yotarsa         0         (ma)         Hysterna         0         (ma)	Device Fails to connect: Check on power up that Standard is selected. If not, power down, and back up, holding down the alarm test button. The front screen should show then either Modbus or Standard. (Consult OLE)	l power or
2000 ms 2000 <b>3</b> ms	Alarm does not go off at the correct percentage contents point: Check the Mirror Output Flag. If	this is set
Output is 24vdc when active or volt free relays available (R5)	Alarm keeps going off when the set point is nearly reached: Set the hysteresis value higher to a 'bounce' causing alarms.	/oid